

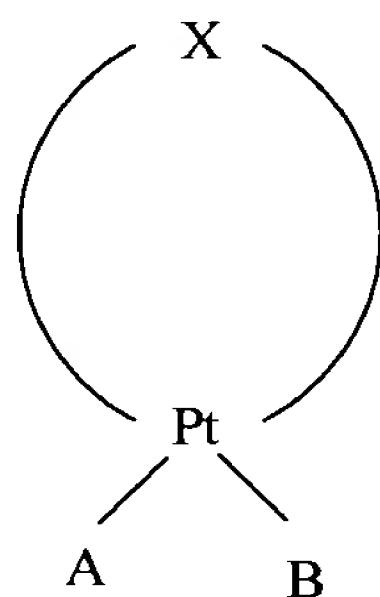
IN THE CLAIMS:

Cancel claims 1-22 and add new claims 23- 105.

~~23.~~ A method for labeling a nucleotide comprising:

providing a spacer comprising a chain having at least four atoms, a spacer reactive moiety at one end of the chain, and an electron donating moiety at the other end of the chain, wherein the spacer reactive moiety is capable of coupling the spacer to a label when the spacer reactive moiety is reacted with the label;

providing a linker having formula I,



wherein X represents an aliphatic diamine, and A and B represent the same or different linker reactive moieties capable of reacting with the electron donating group of the spacer or with the nucleotide, thereby attaching the spacer or the nucleotide to the linker;

reacting the spacer reactive moiety with the label, thereby coupling the spacer to the label;

reacting the electron donating moiety of the spacer with one of the linker reactive moieties, thereby attaching the spacer to the linker; and

reacting the nucleotide with the other linker reactive moiety, thereby attaching

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 the nucleotide to the linker.

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24. The method according to claim ¹~~23~~, wherein X represents an aliphatic diamine having 2-6 carbon atoms.

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25. The method according to claim ¹~~23~~, wherein X represents an aliphatic diamine having the formula $G_2NCH_2CH_2NG_2$, wherein G represents H or an alkyl group of from 1 to 6 carbon atoms.

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26. The method according to claim ¹~~23~~, wherein X represents ethylenediamine.

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27. The method according to claim ¹~~23~~, wherein X represents N,N,N',N'-tetramethylethylenediamine.

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28. The method according to claim ¹~~23~~, wherein A and B represent NO_3^- , SO_3^- , Cl^- , I^- , other halogen or Me_2SO .

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29. The method according to claim ¹~~23~~, wherein A and B are the same.

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30. The method according to claim ¹~~23~~, wherein the spacer comprises no more than twenty carbon atoms.

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31. The method according to claim ⁸~~30~~, wherein the carbon atoms are non-branched.

10
32. The method according to claim ¹~~23~~, wherein the spacer comprises four carbon atoms and one heteroatom.

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33. The method according to claim ¹⁰~~32~~, wherein the heteroatom is oxygen.

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34. The method according to claim ¹~~23~~, wherein the spacer is 1,8-diamino-3,6-dioxaoctane.

sub C
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35. The method according to claim ¹23, wherein the spacer is an oligolysine or a polylysine.

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36. The method according to claim ¹23, wherein the electron donating moiety is an amino group or a thiolate group.

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37. The method according to claim ¹³36, wherein the amino group is an aromatic amino group.

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38. The method according to claim ¹³36, wherein the amino group is an imidazole or purine group.

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39. The method according to claim ¹23, wherein the spacer reactive moiety is NH₂.

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40. The method according to claim ¹23, wherein the label is radioactive.

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41. The method according to claim ¹23, wherein the label is an enzyme.

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42. The method according to claim ¹23, wherein the label is a component of a specific binding pair.

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43. The method according to claim ¹23, wherein the specific binding pair is biotin and avidin or streptavidin.

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44. The method according to claim ¹23, wherein the label is a dye, a fluorochrome, or a reducing agent.

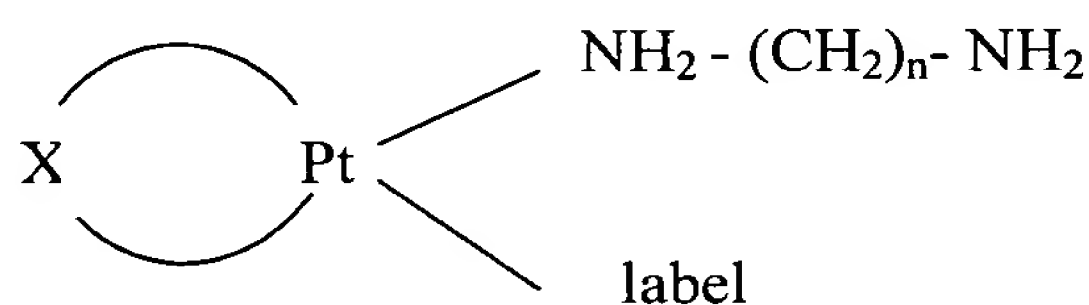
23
45. The method according to claim ¹23, wherein the label is digoxigenin.

24
46. The method according to claim ¹23, wherein the nucleotide is adenine, thymidine, cytosine, guanine, or uridine.

~~24~~ ~~47~~. The method according to claim ~~23~~¹, wherein the nucleotide is adenine, thymidine, cytosine, and either guanine or uridine.

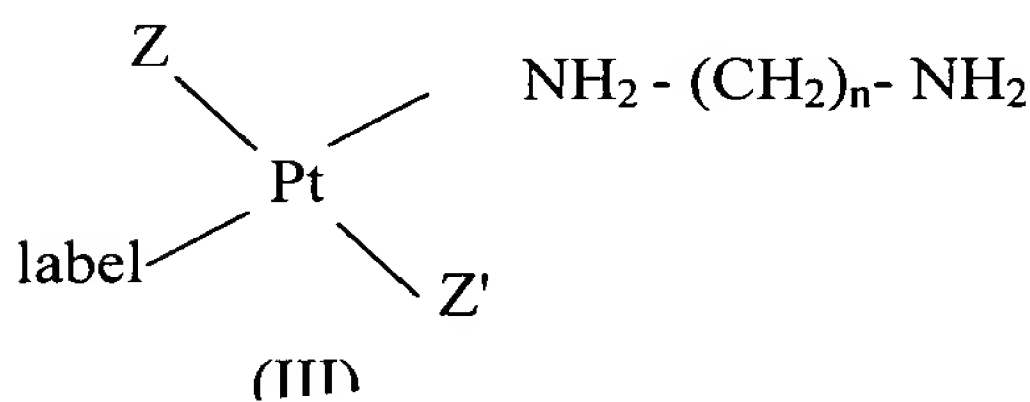
~~25~~ ~~48~~. The method according to claim ~~23~~¹, wherein the nucleotide is a purine.

~~26~~ ~~49~~. The method according to claim ~~23~~¹ wherein the linker is reacted with a labeling moiety comprising



(II)

or the formula



(III)

wherein X represents an aliphatic diamine, Z and Z' represent a non-leaving ligand and n is an integer of from 2 to 10.

~~27~~ ~~50~~. A method according to claim ~~49~~²⁶, wherein Z and/or Z' represent an NH_3 , NH_2R , NHR_2 , or NR_3 group, wherein R represents an alkyl group having from 1 to 6 carbon atoms.

~~28~~ ~~51~~. A labeled nucleotide obtainable by the method of claim 23.

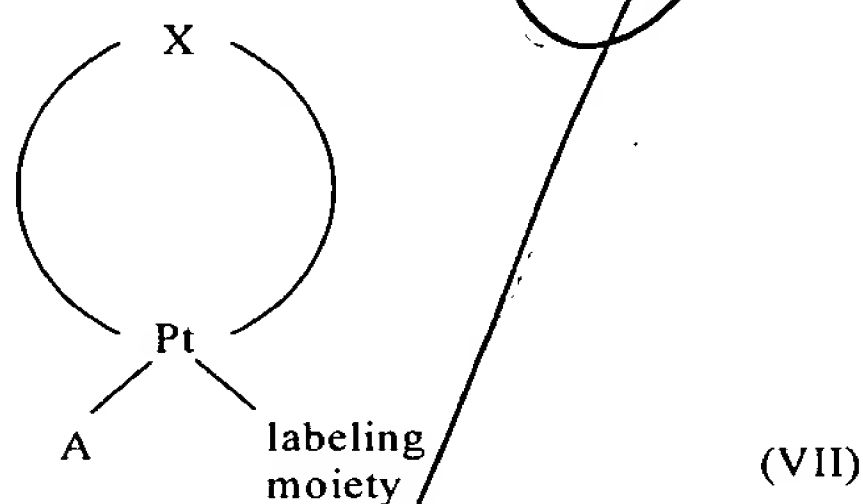
52. A labeled nucleotide according to claim 51 wherein the nucleotide is adenine, thymidine, cytosine, guanine, or uridine.

53. A labeled nucleotide according to claim 51 wherein the nucleotide is adenine, thymidine, cytosine, and either guanine or uridine.

54. A labeled nucleotide according to claim 51 wherein the nucleotide is a purine.

55. A method for labeling a nucleotide comprising:

providing a linker having formula VII,



wherein:

X represents an aliphatic diamine;

A represents a reactive moiety capable of reacting with the nucleotide, thereby attaching the nucleotide to the linker when the reactive moiety reacts with the nucleotide;

the labeling moiety comprises a spacer comprising an electron donating moiety bonded to the platinum atom, a chain having at least four atoms attached to the electron donating moiety, and a label attached to the end of the chain distal to the electron donating moiety; and,

reacting the reactive moiety with the nucleotide, thereby labeling the nucleotide.

56. The method according to claim 55, wherein X represents an aliphatic diamine having 2-6 carbon atoms.

57. The method according to claim 55, wherein X represents an aliphatic diamine having the formula $G_2NCH_2CH_2NG_2$, wherein G represents H or an alkyl group of from 1 to 6 carbon atoms.

58. The method according to claim 55, wherein X represents ethylenediamine.

59. The method according to claim 55, wherein X represents N,N,N',N'-tetramethylethylenediamine.

60. The method according to claim 55, wherein A represents NO_3^- , SO_3^- , Cl^- , I^- , other halogen or Me_2SO .

61. The method according to claim 55, wherein A represents NO_3^- .

62. The method according to claim 55, wherein the spacer comprises no more than twenty carbon atoms.

63. The method according to claim 62, wherein the carbon atoms are non-branched.

64. The method according to claim 55, wherein the spacer comprises four carbon atoms and one heteroatom.

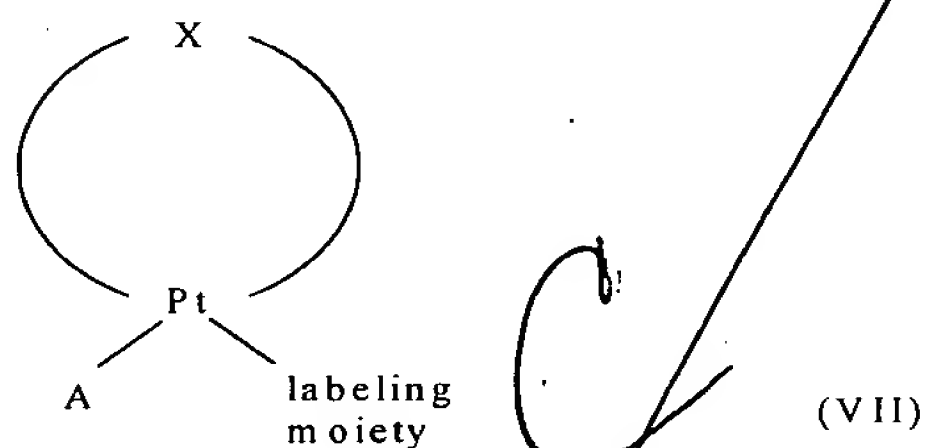
65. The method according to claim 64, wherein the heteroatom is oxygen.

66. The method according to claim 55, wherein the spacer is 1,8-diamino-3,6-dioxaoctane.

67. The method according to claim 55, wherein the spacer is an oligolysine or a polylysine.
68. The method according to claim 55, wherein the electron donating moiety is an amino group or a thiolate group.
69. The method according to claim 68, wherein the amino group is an aromatic amino group.
70. The method according to claim 68, wherein the amino group is an imidazole or purine group.
71. The method according to claim 55, wherein the label is radioactive.
72. The method according to claim 55, wherein the label is an enzyme.
73. The method according to claim 55, wherein the label is a component of a specific binding pair.
74. The method according to claim 55, wherein the specific binding pair is biotin and either avidin or streptavidin.
75. The method according to claim 55, wherein the label is a dye, a fluorochrome, or a reducing agent.
76. The method according to claim 55, wherein the label is digoxigenin.
77. The method according to claim 55, wherein the nucleotide is adenine, thymidine, cytosine, guanine, or uridine.
78. The method according to claim 55, wherein the nucleotide is adenine, thymidine, cytosine, and either guanine or uridine, or guanine and uridine.

79. The method according to claim 55, wherein the nucleotide is a purine.

80. A labeling substance having formula VII



wherein:

X represents an aliphatic diamine;

A represents a reactive moiety; and

the labeling moiety comprises a label coupled to a spacer, the spacer comprising a chain having at least four atoms and an electron donating moiety at the end of the spacer distal to the label.

81. The labeling substance according to claim 80, wherein X represents an aliphatic diamine having 2-6 carbon atoms.

82. The labeling substance according to claim 80, wherein X represents an aliphatic diamine having the formula $G_2NCH_2CH_2NG_2$, wherein G represents H or an alkyl group of from 1 to 6 carbon atoms.

83. The labeling substance according to claim 80, wherein X represents ethylenediamine.

84. The labeling substance according to claim 80, wherein X represents N,N,N',N'-tetramethylethylenediamine.

85. The labeling substance according to claim 80, wherein A and B represent NO_3^- , SO_3^- , Cl^- , I^- , other halogen or Me_2SO .

86. The labeling substance according to claim 80, wherein A and B are the same.

87. The labeling substance according to claim 80, wherein the spacer comprises no more twenty carbon atoms.

88. The labeling substance according to claim 87, wherein the carbon atoms are non-branched.

89. The labeling substance according to claim 80, wherein the spacer comprises four carbon atoms and one heteroatom.

90. The labeling substance according to claim 89, wherein the heteroatom is oxygen.

91. The labeling substance according to claim 80, wherein the spacer is 1,8-diamino-3,6-dioxaoctane.

92. The labeling substance according to claim 80, wherein the spacer is an oligolysine or a polylysine.

93. The labeling substance according to claim 80, wherein the electron donating moiety is an amino group or a thiolate group.

94. The labeling substance according to claim 93, wherein the amino group is an aromatic amino group.

95. The labeling substance according to claim 93, wherein the amino group is an imidazole or purine group.

96. The labeling substance according to claim 80, wherein the spacer reactive moiety is NH_2 .

97. The labeling substance according to claim 80, wherein the label is radioactive.

98. The labeling substance according to claim 80, wherein the label is an enzyme.

99. The labeling substance according to claim 80, wherein the label is a component of a specific binding pair.

100. The labeling substance according to claim 80, wherein the specific binding pair is biotin and either avidin or streptavidin.

101. The labeling substance according to claim 80, wherein the label is a dye, a fluorochrome, or a reducing agent.

102. The labeling substance according to claim 80, wherein the label is digoxigenin.

103. The labeling substance according to claim 80, wherein the nucleotide is adenine, thymidine, cytosine, guanine, or uridine.

104. The labeling substance according to claim 80, wherein the nucleotide is adenine, thymidine, cytosine, and either guanine or uridine.

105. The labeling substance according to claim 80, wherein the nucleotide is a purine.

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